IN THE CLAIMS:

1. (Currently Amended) A computer-implemented method for curve fitting, the method comprising:

[[a)]] (a) receiving a plurality of data points;

[[b)]] (b) generating a curve based on two or more random points of the plurality of data points;

[[c)]] (c) testing the curve against a first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing produces first test results;

[[d)]] (d) performing (b) and (c) a plurality of times to determine a curve which meets first criteria, wherein said performing (b) and (c) a plurality of times comprises performing (b) and (c) in an iterative manner until ending criteria are met; and

[[e)]] (e) if said first test results meet said first criteria, outputting information regarding the curve.

2. (Cancelled)

3. (Cancelled)

4. (Previously Presented) The computer-implemented method of claim 1, wherein said ending criteria comprise one or more of:

the number of iterations meeting or exceeding an iteration threshold; and

a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value.

5. (Currently Amended) The computer-implemented method of claim 1, further comprising:

after (b) and before (c), pre-testing the curve against a second subset of the plurality of data points, wherein the second subset is a proper subset of the plurality of data points, wherein said pre-testing produces second test results;

if said second test results meet second criteria, then performing ~~c)—e)~~ (c) through (e).

6. (Previously Presented) The computer-implemented method of claim 5, wherein the second subset is smaller than the first subset.

7. (Previously Presented) The computer-implemented method of claim 5, wherein the second subset is a random subset comprising randomly selected points from the plurality of data points.

8. (Previously Presented) The computer-implemented method of claim 7, further comprising:

randomizing the plurality of data points after said receiving to generate a randomized list of the plurality of data points;

wherein said randomly selected points from the plurality of data points are selected by traversing the randomized list.

9. (Previously Presented) The computer-implemented method of claim 8, wherein said randomizing the plurality of data points further comprises selecting a random starting position in the randomized list, and wherein said traversing the randomized list comprises traversing the randomized list starting at the random starting position.

10. (Previously Presented) The computer-implemented method of claim 5, wherein said pre-testing the curve against a second subset of the plurality of data points comprises:

determining a number of the second subset of the plurality of data points which are within a specified radius of the curve;

wherein said second test results comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve.

11. (Previously Presented) The computer-implemented method of claim 10, wherein said second criteria comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value.

12. (Previously Presented) The computer-implemented method of claim 10, wherein said second criteria comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a specified fraction of the second subset.

13. (Previously Presented) The computer-implemented method of claim 1, wherein said testing the curve against a first subset of the plurality of data points comprises:

determining a number of the first subset of the plurality of data points which are within a specified radius of the curve;

wherein said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve.

14. (Previously Presented) The computer-implemented method of claim 13, wherein said first criteria comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a specified fraction of the first subset.

15. (Previously Presented) The computer-implemented method of claim 1, wherein the first subset comprises substantially all of the plurality of data points.

16. (Previously Presented) The computer-implemented method of claim 1,

wherein said outputting information comprises displaying the generated curve on a display device.

17. (Previously Presented) The computer-implemented method of claim 1, wherein the curve comprises one of a line, a circle, and an ellipse.

18. (Previously Presented) The computer-implemented method of claim 1, further comprising:

performing a refined curve fit, wherein the refined curve fit is performed using a second subset of the plurality of data points comprising data points within a specified radius of the curve, wherein the refined curve fit comprises iteratively culling outlying data points from the second subset, generating a culled subset of data points, and fitting a new curve to the culled subset at each iteration until an ending condition is met, wherein the refined curve fit generates a refined curve, and

generating output, comprising one or more of information regarding the refined curve, and the culled subset of the plurality of data points.

19. (Currently Amended) The computer-implemented method of claim 18, wherein said performing [[a]] the refined curve fit comprises:

calculating a maximum error allowed for the refined curve fit based on the specified radius;

removing one or more points from the second subset, thereby generating [[a]] the culled subset, wherein said one or more points are furthest from the curve;

fitting the new curve to the culled subset;

calculating an error for the new curve on the culled subset;

repeating said removing, said fitting, and said calculating an error one or more times to generate the refined curve; and

generating a result output, wherein said result output comprises one or more of:

the culled subset;

the refined curve;

the error for the refined curve on the culled subset;

an error for the refined curve with respect to the plurality of data points;

a score, indicating the fitness of the refined curve with respect to the culled subset; and

a score, indicating the fitness of the refined curve with respect to the plurality of data points.

20. (Previously Presented) The computer-implemented method of claim 1,

wherein the plurality of data points comprises pixels of an image; and

wherein the curve fitting method operates to perform edge detection on the image.

21-41 (Cancelled)

42. (Currently Amended) A memory medium operable to store program instructions for performing a curve fit on a received plurality of data points, wherein the program instructions are executable by a processor to perform:

[[a)]] (a) generating a curve based on two or more random points of the plurality of data points;

[[b)]] (b) testing the curve against a first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing produces first test results;

[[c)]] (c) performing (a) and (b) a plurality of times to determine a curve which meets first criteria, wherein said performing (a) and (b) a plurality of times comprises performing (a) and (b) in an iterative manner until ending criteria are met; and

[[d)]] (d) if said first test results meet said first criteria, outputting information regarding the curve.

43. (Currently Amended) The memory medium of claim 42, wherein said ending criteria comprise one or more of:

the number of iterations meeting or exceeding an iteration threshold; and

a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value.

44. (Currently Amended) The memory medium of claim 42, wherein the program instructions are further executable to perform:

after (a) and before (b), pre-testing the curve against a second subset of the plurality of data points, wherein the second subset is a proper subset of the plurality of data points, wherein said pre-testing produces second test results, wherein said second subset is a random subset comprising randomly selected points from the plurality of data points; and

if said second test results meet second criteria, then performing ~~b) – d)~~ (b) through (d).

45. (Original) The memory medium of claim 44, wherein the program instructions are further executable to perform:

randomizing the plurality of data points after said receiving to generate a randomized list of the plurality of data points;

wherein said randomly selected points from the plurality of data points are selected by traversing the randomized list.

46. (Currently Amended) The memory medium of claim 44,

wherein said pre-testing the curve against [[a]] the second subset of the plurality of data points comprises determining a number of the second subset of the plurality of data points which are within a specified radius of the curve;

wherein said second test results comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve;

wherein said second criteria comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value;

wherein said testing the curve against [[a]] the first subset of the plurality of data points comprises determining a number of the first subset of the plurality of data points which are within the specified radius of the curve;

wherein said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve; and

wherein said first criteria comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value.

47. (Currently Amended) The memory medium of claim 42, wherein the program instructions are further executable to perform:

performing a refined curve fit, wherein the refined curve fit is performed using a second subset of the plurality of data points comprising data points within a specified radius of the curve, wherein the refined curve fit comprises iteratively culling outlying data points from the second subset, generating a culled subset of data points, and fitting a new curve to the culled subset at each iteration until an ending condition is met, wherein the refined curve fit generates a refined curve[[,]]; and

generating output, comprising one or more of information regarding the refined curve, and the culled subset of the plurality of data points.

48-52 (Cancelled)

53. (Currently Amended) A computer based system for performing a curve fit, comprising:

a CPU;

a memory medium coupled to the CPU, wherein the memory medium is operable to store program instructions, and wherein the CPU is operable to execute the program instructions; and

an input which is operable to receive a plurality of data points;

wherein the program instructions are executable by the CPU to:

[[a)]] (a) generate a curve based on two or more random points of the plurality of data points;

[[b)]] (b) test the curve against a first subset of the plurality of data points, to produce first test results, wherein the first subset is a proper subset of the plurality of data points;

[[c)]] (c) perform (a) and (b) a plurality of times to determine a curve which meets first criteria, wherein said performing (a) and (b) a plurality of times comprises performing (a) and (b) in an iterative manner until ending criteria are met, and wherein said ending criteria comprise one or more of:

the number of iterations meeting or exceeding an iteration threshold; and

a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value; and

d) if said first test results meet said first criteria, outputting information regarding the curve.

54. (Cancelled)

55. (Currently Amended) The system of claim 53, wherein the program instructions are further executable by the CPU to:

after (a) and before (b), pre-test the curve against a second subset of the plurality of data points to produce second test results, wherein said second subset is a random subset comprising randomly selected points from the plurality of data points; and

if said second test results meet second criteria, perform ~~b) – d)~~ (b) through (d).

56. (Previously Presented) The system of claim 55, wherein the program instructions are further executable by the CPU to:

randomize the plurality of data points after said receiving to generate a randomized list of the plurality of data points;

wherein said randomly selected points from the plurality of data points are selected by traversing the randomized list.

57. (Currently Amended) The system of claim 55,

wherein, in pre-testing the curve against a second subset of the plurality of data points, the program instructions are further executable by the CPU to determine a number

of the second subset of the plurality of data points which are within a specified radius of the curve;

wherein said second test results comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve;

wherein said second criteria comprise said number of the second subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value;

wherein, in testing the curve against [[a]] the first subset of the plurality of data points, the program instructions are further executable by the CPU to determine a number of the first subset of the plurality of data points which are within the specified radius of the curve;

wherein said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve; and

wherein said first criteria comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value.

58. (Previously Presented) The system of claim 53, wherein the program instructions are further executable by the CPU to:

perform a refined curve fit, wherein the refined curve fit is performed using a second subset of the plurality of data points comprising data points within a specified radius of the curve, wherein, in performing the refined curve fit, the program instructions are executable by the CPU to:

iteratively cull outlying data points from the second subset;,

generate a culled subset of data points;, and

fit a new curve to the culled subset at each iteration until an ending condition is met, wherein the refined curve fit generates a refined curve, and

generate output, comprising one or more of information regarding the refined curve, and the culled subset of the plurality of data points.

59-63 (Cancelled)

64. (Currently Amended) A computer-implemented method for curve fitting, the method comprising:

[[a)]] (a) receiving a plurality of data points;

[[b)]] (b) generating a curve based on two or more random points of the plurality of data points;

[[c)]] (c) ~~pre-testing~~ testing the curve against a ~~second~~ first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing includes determining a number of the first subset of the plurality of data points which are within a specified radius of the curve, wherein said ~~pre-testing~~ testing the curve against a first subset produces ~~second~~ first test results, wherein said first test results include said number of the first subset of the plurality of data points which are within the specified radius of the curve; and

if said ~~second~~ first test results meet ~~second~~ first criteria, performing steps (d) and (e):

[[d)]] (d) testing the curve against a ~~first~~ second subset of the plurality of data points, wherein said testing the curve against a second subset of the plurality of data points produces ~~first~~ second test results; and

[[e)]] (e) if said ~~first~~ second test results meet ~~first~~ second criteria, outputting information regarding the curve.

65. (Currently Amended) The computer-implemented method of claim 64, wherein the ~~second~~ first subset is smaller than the ~~first~~ second subset.

66. (Currently Amended) The computer-implemented method of claim 64, wherein the ~~second~~ first subset is a random subset comprising randomly selected points from the plurality of data points.

67. (Previously Presented) The computer-implemented method of claim 66, further comprising:

randomizing the plurality of data points after said receiving to generate a randomized list of the plurality of data points;

wherein said randomly selected points from the plurality of data points are selected by traversing the randomized list.

68. (Previously Presented) The computer-implemented method of claim 67, wherein said randomizing the plurality of data points further comprises selecting a random starting position in the randomized list, and wherein said traversing the randomized list comprises traversing the randomized list starting at the random starting position.

69. (Currently Amended) The computer-implemented method of claim 68, wherein said ~~pre-testing~~ testing the curve against ~~a second~~ the first subset of the plurality of data points comprises:

determining a number of the ~~second~~ first subset of the plurality of data points which are within a specified radius of the curve;

wherein said ~~second~~ first test results comprise said number of the ~~second~~ first subset of the plurality of data points which are within the specified radius of the curve.

70. (Currently Amended) The computer-implemented method of claim 69, wherein said ~~second~~ first criteria comprise said number of the ~~second~~ first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value.

71. (Currently Amended) The computer-implemented method of claim 69, wherein said ~~second~~ first criteria comprise said number of the ~~second~~ first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a specified fraction of the ~~second~~ first subset.

72. (Currently Amended) A computer-implemented method for curve fitting, the method comprising:

a) receiving a plurality of data points;

b) generating a curve based on two or more random points of the plurality of data points;

c) testing the curve against a first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing produces first test results, wherein said testing the curve against a first subset of the plurality of data points comprises:

determining a number of the first subset of the plurality of data points which are within a specified radius of the curve, wherein said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve;

d) if said first test results meet first criteria, outputting information regarding the curve.

73. (Previously Presented) The computer-implemented method of claim 72, wherein said first criteria comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a specified fraction of the first subset.

74. (Previously Presented) A computer-implemented method for curve fitting, the method comprising:

a) receiving a plurality of data points;

b) generating a curve based on two or more random points of the plurality of data points;

c) testing the curve against a first subset of the plurality of data points, wherein said testing produces first test results;

d) if said first test results meet first criteria, outputting information regarding the curve;

e) performing a refined curve fit, wherein the refined curve fit is performed using a second subset of the plurality of data points comprising data points within a specified radius of the curve, wherein the refined curve fit comprises iteratively culling outlying

data points from the second subset, generating a culled subset of data points, and fitting a new curve to the culled subset at each iteration until an ending condition is met, wherein the refined curve fit generates a refined curve, and

f) generating output, comprising one or more of information regarding the refined curve, and the culled subset of the plurality of data points.

75. (Currently Amended) The computer-implemented method of claim 74, wherein said performing a refined curve fit comprises:

calculating a maximum error allowed for the refined curve fit based on the specified radius;

removing one or more points from the second subset, thereby generating a culled subset, wherein said one or more points are furthest from the curve;

fitting the new curve to the culled subset;

calculating an error for the new curve on the culled subset;

repeating said removing, said fitting, and said calculating an error one or more times to generate the refined curve; and

generating a result output, wherein said result output comprises one or more of:

the culled subset;

the refined curve;

the error for the refined curve on the culled subset;

a score, indicating the fitness of the refined curve with respect to the plurality of data points; and

the plurality of data points.

76. (Currently Amended) A memory medium operable to store program instructions for performing a curve fit on a received plurality of data points, wherein the program instructions are executable by a processor to perform:

[[a)]] (a) generating a curve based on two or more random points of the plurality of data points;

[[b)]] (b) ~~pre-testing~~ testing the curve against a ~~second~~ first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points,

wherein the first subset comprises randomly selected points from the plurality of data points, wherein said ~~pre-testing~~ testing produces ~~second~~ first test results~~, wherein said second subset is a random subset comprising randomly selected points from the plurality of data points~~; and

if said ~~second~~ first test results meet ~~second~~ first criteria,

[[c)]] (c) testing the curve against a ~~first~~ second subset of the plurality of data points, wherein the second subset is a proper subset of the plurality of data points, wherein said testing produces ~~first~~ second test results;

[[d)]] (d) performing (a) [[-]] through (c) a plurality of times to determine a curve which meets ~~first~~ second criteria; and

[[e)]] (e) if said ~~first~~ second test results meet ~~first~~ second criteria, outputting information regarding the curve.

77. (Previously Presented) The memory medium of claim 76, wherein the program instructions are further executable to perform:

randomizing the plurality of data points after said receiving to generate a randomized list of the plurality of data points;

wherein said randomly selected points from the plurality of data points are selected by traversing the randomized list.

78. (Previously Presented) The memory medium of claim 77,

wherein said ~~pre-testing~~ testing the curve against ~~a second subset of the plurality of data points~~ the curve against the first subset of the plurality of data points comprises determining a number of the ~~second~~ first subset of the plurality of data points which are within a specified radius of the curve;

wherein said ~~second~~ first test results comprise said number of the ~~second~~ first subset of the plurality of data points which are within the specified radius of the curve;

wherein said ~~second~~ first criteria comprise said number of the ~~second~~ first subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value;

wherein said testing the curve against ~~a first~~ the second subset of the plurality of data points comprises determining a number of the ~~first~~ second subset of the plurality of data points which are within the specified radius of the curve;

wherein said ~~first~~ second test results comprise said number of the ~~first~~ second subset of the plurality of data points which are within the specified radius of the curve; and

wherein said ~~first~~ second criteria comprise said number of the ~~first~~ second subset of the plurality of data points which are within the specified radius of the curve meeting or exceeding a threshold value.

79. (Previously Presented) A memory medium operable to store program instructions for performing a curve fit on a received plurality of data points, wherein the program instructions are executable by a processor to perform:

a) generating a curve based on two or more random points of the plurality of data points;

b) testing the curve against a first subset of the plurality of data points, wherein said testing produces first test results;

c) performing (a) and (b) a plurality of times to determine a curve which meets first criteria;

d) if said first test results meet first criteria, outputting information regarding the curve;

e) performing a refined curve fit, wherein the refined curve fit is performed using a second subset of the plurality of data points comprising data points within a specified radius of the curve, wherein the refined curve fit comprises iteratively culling outlying data points from the second subset, generating a culled subset of data points, and fitting a new curve to the culled subset at each iteration until an ending condition is met, wherein the refined curve fit generates a refined curve, and

f) generating output, comprising one or more of information regarding the refined curve, and the culled subset of the plurality of data points.

80. (Currently Amended) A memory medium operable to store program instructions for performing a curve fit on a received plurality of data points, wherein the program instructions are executable by a processor to perform:

[[a)]] (a) generating a curve based on two or more random points of the plurality of data points;

[[b)]] (b) testing the curve against a first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing produces first test results;

[[c)]] (c) performing (a) and (b) a plurality of times to determine a curve which meets first criteria, wherein said performing (a) and (b) a plurality of times comprises performing (a) and (b) in an iterative manner until ending criteria are met, and wherein said ending criteria comprise one or more of:

the number of iterations meeting or exceeding an iteration threshold; and

a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value; and

[[d)]] (d) if said first test results meet first criteria, outputting information regarding the curve.

81. (Currently Amended) A computer-implemented method for curve fitting, the method comprising:

[[a)]] (a) receiving a plurality of data points;

[[b)]] (b) generating a curve based on two or more random points of the plurality of data points;

[[c)]] (c) testing the curve against a first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said testing produces first test results;

[[d)]] (d) performing (b) and (c) a plurality of times to determine a curve which meets first criteria, wherein said performing (b) and (c) a plurality of times comprises performing (b) and (c) in an iterative manner until ending criteria are met, and wherein said ending criteria comprise one or more of:

the number of iterations meeting or exceeding an iteration threshold; and

a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value; and

[[e)]] (e) if said first test results meet first criteria, outputting information regarding the curve.

82. (Currently Amended) A computer-implemented method for curve fitting, the method comprising:

[[a)]] (a) generating a curve based on two or more random points of the plurality of data points;

[[b)]] (b) pre-testing the curve against a ~~second~~ first subset of the plurality of data points, wherein the first subset is a proper subset of the plurality of data points, wherein said pre-testing produces ~~second~~ first test results, wherein said ~~second~~ first subset is a random subset comprising randomly selected points from the plurality of data points; and

[[c)]] (c) if said ~~second~~ first test results meet ~~second~~ first criteria, testing the curve against a ~~first~~ second subset of the plurality of data points, wherein said testing produces ~~first~~ second test results;

[[d)]] (d) performing (a) [[-]] through (c) a plurality of times to determine a curve which meets ~~first~~ second criteria; and

[[e)]] (e) if said ~~first~~ second test results meet said first criteria, outputting information regarding the curve.

83. (Withdrawn) A computer-implemented method for curve fitting, the method comprising:

a) generating a curve based on two or more random points of the plurality of data points;

b) pre-testing the curve against a first random subset of the plurality of data points, wherein said testing produces first test results;

c) if said first test results meet first criteria, testing the curve against a second subset of the plurality of data points, thereby generating second test results; and

d) if said second test results meet second criteria, outputting information regarding the curve.